



SPACE SHUTTLE PROGRAM
Space Shuttle Projects Office (MSFC)
NASA Marshall Space Flight Center, Huntsville, Alabama



STS-110/ET-114 Flight Readiness Review

External Tank Project



March 26, 2002



Overview

Presenter
R. Wetmore/LMSSC-ET/3000

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- **Limited Life Component Status**
 - All within required life through scheduled launch date plus 90 days
- **No Significant Changes**
- **Processing Anomalies**
 - Access Arm Interference with Intertank
- **Readiness Statement**

Access Arm Interference with Intertank

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• Issue

- ET-114 Intertank damaged due to Intertank access arm extensible platform interference

• Background

- Extensible platform was left in an extended position
 - Arm impacted Intertank stringers approximately 12" aft of Intertank access door
 - Interference evident by damaged foam on Intertank stringers



Damaged Foam on Intertank Stringers



Foam Removed from Stringers for Inspection





Access Arm Interference with Intertank

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- **Actions Taken**

- Inspection required to quantify extent of damage
 - Foam trimmed / removed to expose substrate
 - Performed visual inspection using 10x magnification

- **Inspection Results**

- Visual inspection with 10x magnification showed no evidence of crack or crack-like defects
 - Minor contour deviations ('dents') were noted on two of the stringers (Stringers 5 and 6)
- Damaged / trimmed foam area will be repaired using previously approved materials / processes

- **Rationale for Acceptance**

- Stress analysis shows the FS remains greater than 2.0
 - Structural loads at this location are low
- Fracture analysis predicts >5000 cycles necessary to grow a flaw to failure (through-crack equal to width of largest 'dent')
 - Four cycles required



Readiness Statement

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**The External Tank, ET-114, is certified and
ready for STS-110 flight pending
completion/closure of open and planned work**